

EFFECTS OF FIRE & NATURAL RECOVERY IN A PHOSPHOROUS(P)-ENRICHED EVERGLADES WETLAND: Cattail Expansion, Biogeochemistry, and Native Vegetation Recovery (FIRE PROJECT)

SFWMD Everglades Division, with the support of TBE Group

OBJECTIVES

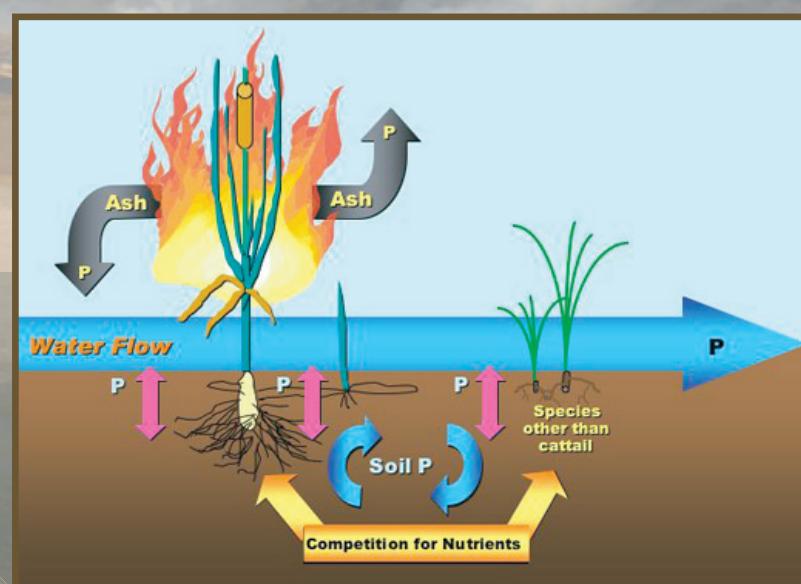
Cattails have invaded nutrient-enriched areas of the Everglades that were formerly ridge/slough habitat. The Fire Project is testing whether fire can hasten recovery of these marshes. The project will document and distinguish between two types of recovery: natural and accelerated recovery at the landscape level. The ecological effects of repeated fires on cattail expansion, P biogeochemistry, and native vegetation recovery in communities now dominated by cattails in the Everglades Protection Area (EPA) will be assessed.

There are three main objectives:

- 1) Determine if accelerated recovery driven by human manipulations (such as fire management) follows a similar pattern to natural recovery, although at an increased rate;
- 2) Investigate the ecosystem response (P biogeochemistry and vegetation dynamics) to fire;
- 3) Assess whether fire can be used as an effective management tool to accelerate the recovery of P-enriched areas in the EPA.



Nutrient cycling, especially P, is critically important to the function of the Everglades ecosystem. The Fire Project will assess water, soil and vegetation phosphorous dynamics and storage under currently reduced P conditions and in the presence of controlled burns.



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SIGNIFICANCE OF THE PROJECT

The project will:

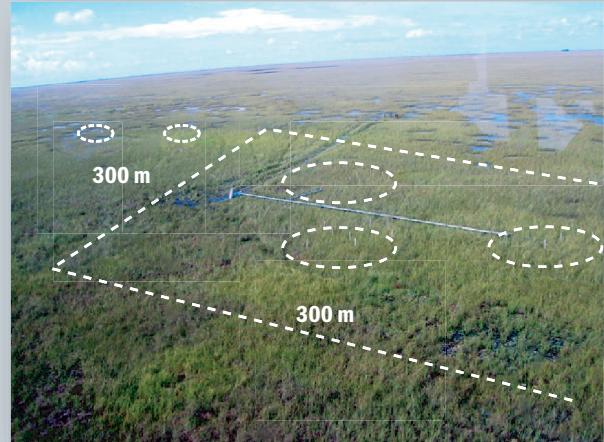
- 1) Provide scientific measurements to assess natural recovery as well as the efficacy of fire as a tool to accelerate recovery of P-enriched areas required by the Long Term Plan for Improving Water Quality in the EPA;
- 2) Expand knowledge of fire ecology in the Everglades and wetlands in general; and
- 3) Advance knowledge of designing and analyzing large-scale ecosystem experiments.



Harvesting macrophyte leaves and roots



Taking water samples for nutrient analysis



Experimental plot layout



Measuring the basal diameter of a cattail



Seed bank sub-study at Everglades Botanical Research Complex



Soil cores record nutrient enrichment and seed banks

FIRE PROJECT SUB-STUDIES

- Surface and Porewater Quality
- Soil Biogeochemistry
- Macrophyte Biomass and Nutrient Content
- Periphyton Biomass and Nutrient Content
- Seed Bank Pattern
- Root Growth and Production
- Leaf Growth and Production
- Decomposition Processes
- Native Vegetation Recruitment
- Aerial Photography
- Natural Recovery
- Public Outreach

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PROJECT SCHEDULE (SUBJECT TO CHANGE)

- 2005 Research Plan and initial sampling
- Apr 2006 Burn #1
 - Feb 2007 Burn #2
 - Feb 2008 Burn #3
 - Feb 2009 Burn #4
 - 2010 Project End



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